

Goodyear Canada Inc.

Collingwood, Ontario

"The recommendations in our Green Analysis report point to our ability to reduce the consumption of resources and improve our environmental performance and competitiveness. We will proceed with some of the suggestions. The largest project, which is the elimination of lead from our production process, has already begun and should be completed in 1996."

Ray McNally, P.Eng.
Engineering Manager,
Collingwood Hose Plant,
Goodyear Canada Inc.

THE COMPANY

The Collingwood Hose Plant, part of Goodyear's world-wide network of manufacturing plants, makes reinforced rubber hose products for the automotive, hydraulic and industrial markets. The plant employs 450 people and exports products to North American and world markets.

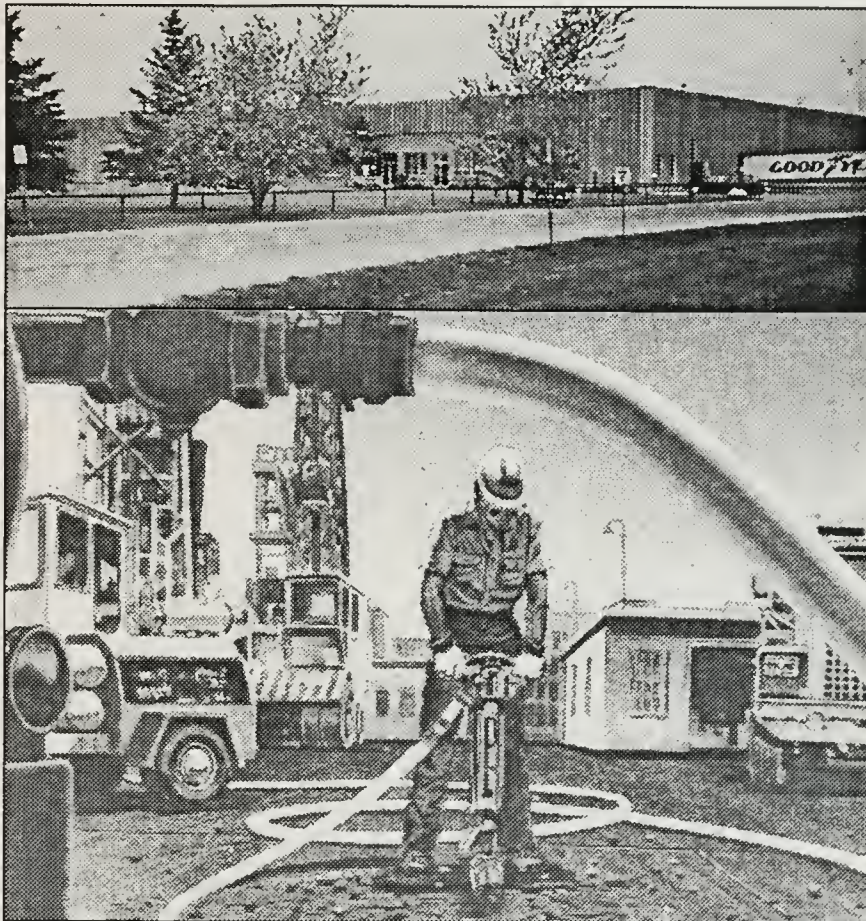
THE CHALLENGE

The environmental mission of Goodyear is to implement and maintain environmental programs and systems which are compatible with a world class manufacturing strategy and good corporate citizenship. All discharges from the Collingwood Hose Plant are monitored carefully and the plant fully complies with Ontario and local environmental regulations.

At the Collingwood plant, various types of reinforced rubber hose are manufactured in a continuous extrusion process, formed to specific shapes and thermally cured in steam pressure vessels. These processes presented a challenge for identifying opportunities to save energy, water and raw materials.

OPPORTUNITIES

Opportunities existed at the Collingwood plant to save natural gas and water in the extrusion and curing process. Goodyear also wanted to



TOP: Goodyear Canada Inc., Collingwood. BOTTOM: One of the hundreds of hose products from the Goodyear Collingwood plant.

examine the possibility of greening its processes by using non-hazardous materials in its operations.

In 1995, Goodyear Canada Inc. and the Ministry of Environment and Energy retained the services of Kavski Engineering Ltd. of Barrie, Ontario, to conduct a green analysis of the Collingwood plant.

RECOMMENDATIONS

The final report of the green analysis of Goodyear Collingwood included the following five recommendations:

- * replace lead press technology with tape wrap technology for compressing hose material during curing.
 - * replace toluene with a more benign solvent for rubber softening and tackifying.
 - * reduce steam consumption in the curing of hose parts by installing new cure vessels.
 - * use magnets to reduce the use of chemicals for boiler water conditioning.
 - * improve the steam system in cure vessels.
- Some of the technologies identified for business development opportunities in the rubber products sector were tape wrap technology for compressing

hose material during curing and the replacement of toluene by another solvent for rubber softening and tackifying prior to curing.

POTENTIAL SAVINGS

The Green Analysis of Goodyear Collingwood identified the following potential savings from the recommended improvements:

	<i>Potential savings as a percentage of total plant use or production</i>
Electrical energy	11 %
Electrical demand	10
Natural gas	20
Water	13
Liquid effluent	13
Solid waste	23
Raw materials	2
Toluene	95

These improvements would require capital spending of about \$2.2 million, which would be recovered quickly through savings in operating costs.

PARTNERSHIP IN POLLUTION PREVENTION AND RESOURCE CONSERVATION

Industrial companies doing business in Ontario may seek ministry/industry services that will help them to:

- * use energy and water more efficiently;
- * reduce, reuse and recycle solid waste;
- * reduce or eliminate liquid effluents and gaseous emissions.

Equipment and services supply companies can benefit from the information provided on technologies identified for business development.

FOR MORE INFORMATION, PLEASE CONTACT:

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MINISTRY OF ENVIRONMENT AND ENERGY SERVICES

For information on Ministry of Environment and Energy assistance to industry, please contact the Industry Conservation Branch at (416) 327-1492, Fax (416) 327-1261.

This project profile was prepared and published as a public service by the Ontario Ministry of Environment and Energy. Its purpose is to transfer information to Ontario companies about findings and recommendations of a resource conservation and environmental analysis conducted by a consulting engineering firm at an industrial plant in Ontario.

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